



A.D. 1874, 14th JULY.

N^o 2461.

S P E C I F I C A T I O N

OF

WILLIAM SPENCE.

TREATING SEWAGE.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY :

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

Price 4/.

1875.



A.D. 1874, 14th JULY. N° 2461.

Treating Sewage.

(This Invention received Provisional Protection only.)

PROVISIONAL SPECIFICATION left by William Spence at the Office of the Commissioners of Patents, with his Petition, on the 14th July 1874.—A communication from abroad by Emile Seraphin Joseph Forgeois and Victor Louis Claye, both of Paris, France.

5 I, WILLIAM SPENCE, of 8, Quality Court, Chancery Lane, in the County of Middlesex, Patent Agent, do hereby declare the nature of the said Invention for “IMPROVEMENTS IN THE TREATMENT OF URINE AND LIQUID SEWAGE IN ORDER TO FIX THE AZOTE AND PHOSPHATE SUBSTANCES CON-
10 TAINED THEREIN AND CONVERT THEM INTO SOLID MATTER, AND IN APPARATUS FOR THE SAME,” (being a communication to me from abroad by Emile Seraphin Joseph Forgeois, and Victor Louis Claye, both of Paris, France), to be as follows:—

The modes of treating urine containing more or less of solid fecal matter coming from sewers hitherto employed in order to fit such
15 matters for use in pasture, or to extract from them the azote and phosphates which they contain under different forms, have been slow in operation, and have required extensive and costly apparatus to effect the separation of the solid fecal matter from the urine.

Now this Invention has for its object the treatment of these matters
20 in such a manner as to convert the azote and phosphate substances

Spence's Improvements in Treating Sewage.

rapidly into solid matter by the use of more simple apparatus than has hitherto been employed for the purpose.

And the Invention consists in taking the urine and sewage as it comes from the sewers or elsewhere, and (without filtering) pouring it into large receptacles of wood lined with lead. These receptacles have 5 each a double bottom with a space between the two bottoms, and the upper bottom being of copper. A coil of pipes is inserted in such a manner that the half of the pipes are above and the other half below the copper bottom. These receptacles are arranged so that each succeeding receptacle may be at a lower level than the preceding one, 10 and they are made to communicate one with the the other.

The material to be treated is introduced into the first receptacle, and there is added some acid having an affinity for the ammonia (usually sulphuric acid) in quantity proportioned to the amount of alkaline substances in the material under treatment, and the mixture 15 is stirred for a short time either by an attendant or by a mechanical agitator. When the acid has thus come in contact with all the liquid sewage, and has fixed by taking up the alkaline substances and transformed the phosphates of lime into phosphoric acid, steam is admitted so as to bring the material by heat to the required con- 20 sistency, when it is passed into the second receptacle which is warmed by steam from the first one. In this second receptacle the material acquires increased consistency, and is passed into the third receptacle. The product thus obtained contains in a fixed but soluble state all the azote and the phosphorus contained in the liquid sewage in the 25 natural state. It is a greyish, light, friable material, portable and easily used, containing from eight to twelve per cent. of azote, and two to five per cent. of phosphoric acid, containing only the richest manure or material adapted for compounding with other kinds of manure. 30

It is not necessary to bring the material to a state of complete desiccation; it may if preferred be mixed with other substances for the manufacture of manure.

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